Preface

KNOWLEDGE MANAGEMENT FOR THE KNOWLEDGE SOCIETY

Even in the scientific context, sometimes the words can become buzzwords, after they are used for some time. This is the case of “Knowledge Society”. An impressive number of studies in many disciplines deals with, mentions, or has something to do with this term (more than 17,000 documents that include this keyword can be retrieved with a simple look-up in “Google Scholar”). Indeed, the knowledge is increasingly recognised as the pivotal element of our activity, our economy, and, thus, our society. Today, much of the work of scientists and practitioners, in several fields, is centred on how this “asset” can be produced, handled, exchanged, stored, and more generally used to generate value for individuals and organisations.

But what does “knowledge society” exactly mean, and how will the term be interpreted in this book? Here, it is not a matter of definitions (which we will happily leave to philosophers and luminaries) but, rather, of more basic questions: what is exactly the difference between “knowledge society” and just “society”? Does this mean that we witness some sort of change, the birth of something that did not exist before? Does it mean that only today we are aware that something (the “knowledge”) can assume unprecedented forms, or is finding fresh ways to be processed, which justifies our new (or renewed) attention?

It would be easy to say that the key of this change has to be found in the impressive advancements of ICT and Internet technologies. Indeed, it appears even obvious to associate the development of the knowledge society with the progress and widespread use of ICT applications. Unfortunately, this is not an answer but, rather, raises additional questions. The revolutionary potential of these technologies has been fully recognised only decades after their invention. Computers were invented about 70 years ago, an almost biblical time, considering the speed of our current lives. The Internet was ideated in the 1950s, and its technical feasibility was demonstrated a few years later.

The experts of innovation studies would probably say that this is common because the processes through which an invention becomes and innovation, spreads and finally, impacts the world significantly, depend on complicated dynamics, and are affected by the interactions of several factors, which takes a much longer time than often predicted. All this is true, but still does not explain the nature of today’s change. Why just a few years ago we used to talk of “information society” and “information paradigm,” and now we have turned to the “knowledge society”? What is the difference? What did it change, and how? And does this mean that, in the next future, we must expect to deal with “another kind of society”?

Actualy, this is not a book of history, and we do not need to find the explanations of how we arrived somewhere, and why. Nor we are interested in making forecasts. Rather, focusing on the research on knowledge management, this book lives in the present, and intends the knowledge society not as a paradigm or a model that already exists and just needs to be explained, but something that we are trying
to build, both conceptually and practically. It is the view of this book: a sort of constructivist perspective on the emerging knowledge society and, in this, of the role, knowledge management (KM).

KM, intended as the set of deliberate, coordinated, and systematic methods for the management of knowledge in organisations by means of appropriate organisational practices and ICT tools, is increasingly popular, but its development is relatively recent. It can be said that managing knowledge has always been one of the major concerns of humanity, but the origins of KM as a branch of management can be traced back to the early 1990s (Prusak, 2001), although KM scholars often cite antecedent works of eminent scholars (e.g., Drucker, 1967; Machlup, 1962; Polanyi, 1967). It is not the purpose here to go further into the definitions or history of KM (the reader can, however, find many references in the various chapters). What is clear is that the idea of KM is strictly intertwined with the idea of building the knowledge society, as it represents one of its concrete bricks.

If the building of a knowledge society relies on the development of KM, here we have both good and bad news. The good news is that there is an impressive effort of practice, research, and education in KM rises the expectation of a bright future for this field. The investments in KM programmes by companies are increasing, and regard not only the major multinationals but also smaller companies, in many industries and countries. Courses and even entire “universities” are devoted to KM. KM-related jobs are increasingly offered by companies, and there are professionals and consultants whose services specialise in KM. As regards the scientific research, there is a huge and increasing number of studies, books, and specialised conferences.

The bad news refers to a some persistent weaknesses of KM, seen as a scientific discipline. A first problem comes from the extreme heterogeneity of approaches, conceptual references, and application fields that can be found. KM initiatives are proposed in totally different environments: in business and in non-profit organisations; in multinationals and smaller companies; in very heterogeneous areas ranging from R&D to operations management, from healthcare management to ICT design. This witnesses the transversal interest in the issue, but at the same time, arises the question of consistency of approaches and methods. Although, sometimes, common viewpoints or approaches are proposed, even the conceptual backgrounds of researchers and practitioners are often heterogeneous. More generally, it is even difficult to draw the boundaries between KM and all the related areas (Information Systems and Computer Science, Sociology, Business Management, Economics, etc.).

Should we resign ourselves to develop distinct KM approaches for the different situations, or are there some “shared fundamentals” that we can try to build up? This is, indeed, what distinguishes a well-established discipline from just “a set of practices.” As KM researchers, we need to proceed with the setting of these fundamentals. This work has been started by the KM community in recent years (see recent collections such as Holsapple, 2003; Schwartz, 2006), but it still requires efforts of analysis, systematisation, and formalisation. In relation to this, the book deals with this question by focusing particularly on a specific topic: the processes of knowledge exchanges in networks that, in the current context of research and practice of KM, appear to be particularly important.

KNOWLEDGE EXCHANGES IN NETWORKED ENVIRONMENTS

The problem of managing knowledge is, essentially, a problem of knowledge exchange. To be managed, the knowledge needs to be retrieved from some source, processed, and then distributed to other users (Garavelli, Gorgoglione, & Scozzi, 2002).

Thus, knowledge exchanges are the essential ingredients of KM. Although the topic of knowledge exchange seems well focalised, a rapid glance at the KM literature is enough to highlight that there are
several problematic aspects that make this topic a challenging terrain for both the research and the practice. An essential problem results from the extreme variety of situations to which the issue of knowledge exchange can be related. It can be said that a myriad of knowledge exchanges continuously occurs in disparate contexts, even when they are not explicitly identified and recognised. An interpersonal communication is an exchange of knowledge, but also economic transactions between two trading firms can be seen as (or involve) a knowledge exchange. Even two computers exchanging messages are, somewhat, part of a kind of knowledge exchange. What’s more, one can speak of knowledge exchange even when there is someone that communicates a message to a broad audience: a TV programme is a process of knowledge exchange, as is the publication of a book or a Web site.

Thus, there is a problem of definition. There is no clear consensus here, and distinct terms (such as knowledge sharing, transfer, exchange) are used (Boyd, Ragsdell, & Oppenheim, 2007; King, 2006), also with different shades of meaning (in this preface, we will just speak of knowledge exchanges, but we will more generally mean all the terms previously indicated).

In addition, the exchange of knowledge is a process that involves various elements (i.e., the knowledge objects exchanged, the sources and receivers, the carrier or medium, the mechanisms used, etc.). Thus, a researcher can decide to centre the analysis on one specific element, or to include different variables or factors, or to focus on the intertwined relationships among all these.

Due to these complications, the characterising aspect, the implications, and the practical questions of knowledge exchange are many. Here, we will explicit focus on the perspectives adopted by researchers whose main field is that of KM. The contributors to this book were asked to explain their viewpoints, research methods and interpretative models, and to debate the findings of their studies, with the purpose to clarify the state of our knowledge about this issue and discuss the prospective fields of study. In particular, they were invited to provide insights into some open questions that we will briefly recall in the following pages.

Processes

How do people and organisations exchange knowledge? An effort or modelisation of the mechanisms and rules that are employed is essential. Also, the nature of the “object” of exchange has to be specified. The classic distinction between tacit and explicit knowledge is fundamental, but needs further explanation.

Another open question is the difference between interpersonal and interorganisational exchange. Knowledge exchanges between organisations are, or involve, knowledge exchanges among individuals. The relationships among these two kinds of exchange need a conceptualisation that has not been achieved yet, and the literature often focuses on specific aspects or specific practical cases.

The human-machine knowledge exchange is a related issue. Technologies are the fundamental support of KM practices. The way knowledge embedded in an individual can be “extracted,” codified, stored in a device, and then retrieved and delivered to other individuals for reuse, is one important field to explore. Also, the connection between the findings of technical research with the problems of interpersonal or interorganisational relationships still requires a conceptualisation.

Value

The motivation of exchanging knowledge with others, or in other terms, the value that the players ascribe to this activity, is another hot issue for KM, and a central theme of this book as well. The current practice shows that KM initiatives that do not account for the motivations of participants in knowledge exchanges are likely to fail (Brydon & Vining, 2006). There is, thus, the need to explain the factors that
can facilitate and hinder the personal participation in a process of knowledge exchange. Motivation can be seen from different viewpoints, and based on various conceptual references. It can be related to distinct but intertwined concepts, such as the personal utility (i.e., knowledge is exchanged to solve a problem or accomplish a task), the economic value (knowledge is exchanged as a sort of good), or the social motivation (individuals exchange knowledge because they belong to a particular context). A systematisation of all these aspects is thus necessary. Again, the difference between personal or organisational value should be clarified.

Networks

Although knowledge exchange can be simply depicted as involving one source and one receiver, this process does not occur in a vacuum but, instead, in a complex configuration of relationships that involve several players. The structure and nature of the networks of interpersonal or interorganisational links, and the distinct roles performed by the various players, are thus an essential focus of analysis. The web of social relationships is one element that attracts the interest of researchers. Hot issues in the KM literature are, for example, the cultural distance between players and the trustworthy climate that facilitates the sharing of knowledge. Here, various models and references are often drawn from a multiplicity of disciplines and fields. An effort of systematisation is required.

The technological infrastructure of the network is another essential issue. There is a rich and significant literature on knowledge management systems and, more generally, on the use of ICT applications for supporting knowledge exchange between individuals and/or organisations. However, technology is not the panacea for any problem of knowledge exchange. The multidimensional and elusive nature of the notion of knowledge often challenges the efforts of ICT researchers and designers. The potential, but also the limitations of technology and the future prospects, and the way these are related to the other elements previously mentioned, are another area that still deserves an in-depth analysis.

AIMS OF THE BOOK AND AUDIENCE

As mentioned, the aims of the book are to illustrate, compare, and discuss models, perspectives, and approaches that can be helpful to understand the state-of-the-art of the current studies of the topic of knowledge exchange in networked environments seen from different viewpoints, and to depict the possible trajectories of the future developments both in the research and in the practice.

The collected chapters provide a rich panorama of the prospects of research on the topic, formulated by scholars working in independent areas. The reader will thus be given a good view of the variety of viewpoints and approaches and, at the same time, indications of the “shared elements” (language, terms, conceptual references) that can be intended as the foundations of an emerging and fascinating field of study.

In this sense, and in coherence with the constructivist view of the knowledge society, this book project should be intended more as a “laboratory of ideas” rather than an “encyclopedia.” The comparison of contrasting viewpoints and the “remote debate” among scholars working on distinct but related fields, provides essential food for thought to the reader, and helps to build a “common interface” enabling the communication between different disciplines and areas. The assumption (and the hope) is that this “cross-fertilisation” can help to overcome the limitations of the single viewpoint, and that the systematic comparison and discussion of different but converging approaches can set the grounds for a shared language and an agreed conceptual framework, can favour the exchange of findings and ideas and builds the foundations of the future research.
Clearly, any multidisciplinary project is risky, since it involves different disciplines and academic traditions that can be distant (and, sometimes, idiosyncratic). However, the nature itself of the problem makes the effort valuable. In addition, the possible drawbacks have been minimised by organising the process of collection and revision of chapters in an appropriate way. Contributors were asked to submit chapters on specific topics, but aiming at explaining concepts, theories, approaches, and perspectives underpinning their current research (rather than illustrating the “last empirical findings”). Secondly, a double-stage reviewing process of chapters has been conducted, to facilitate the understanding by readers specialising in other disciplines. Each chapter has been reviewed by both referees specialising in the same area of the author, who assessed the scientific quality of the chapter in that specific field, and referees specialising in a completely different field, who assessed the “readability” of the chapter and provided suggestions to simplify the language, clarify concepts, make bridges towards other disciplines, and so forth.

The principal audience of this book will consist of scholars and researchers in KM. The book is, in fact, firstly designed to provide “food for thought” for the future research. However, practitioners might find new ideas for a dynamic sector such as knowledge-based or Internet-based services. Graduate and postgraduate students might also find useful references for their work.

The sources of value can be various. As mentioned, the book can help to understand the broad picture of the state-of-the-art of the current research on the topic, and depict the possible trajectories of the future developments. Secondly, it can enable the building of a common set of concepts, terms, references, and approaches in disciplinary areas that are sometimes too distant. Another element of significance is the huge amount of references that is collected here. The contributors were asked to attach a special “additional reading” section that, added to the references directly quoted in their chapters, thus constitutes a comprehensive collection of the current literature on the topic of knowledge exchange, and a unique source of reference to the reader.

STRUCTURE OF THE BOOK AND CONTRIBUTIONS

Once the chapters were collected, the book was organised in two parts. The first section is entitled “Models,” and gathers the contributions that focus on the conceptual modelisation of the context where knowledge exchanges occur, or deal with general key factors affecting these processes. Compared with the second section of the book, these first chapters have fewer links with specific application problems, although their analysis can provide elements that can be of use both to formulate research hypotheses or to inspire practical implementations of KM. These first chapters can be further classified in relation to their conceptual backgrounds and the main focus of analysis, or better, to their distinct viewpoints of the topic.

A first viewpoint refers to a human-oriented approach to KM, and highlights the social and personal issues affecting the exchange of knowledge. In her “Knowledge Sharing: Interactive Process Between Organizational Knowledge Sharing Initiative and Individuals’ Sharing Practice,” Shuhua Liu reflects on the relationships occurring between individuals’ practices and organisational settings in knowledge exchange. As mentioned before, KM programmes have the aim to facilitate the exploitation of knowledge by organisation, but since organisations are made of individuals, the complex relationships between these different entities need a clarification. In particular, based on a review of established theories in sociology, management science, and organisational behaviour, the author attempts to develop elements of a new model that explains how the organisational settings influence the way individuals share knowledge. Knowledge is not something that can be “detached” from the individual, but rather it is built through
a sense-making process occurring in a context of social interactions, and subjected to the institutional and organisational arrangements that regulate or influence these interactions. This view has interesting implications for KM. In particular, for a successful knowledge management initiative, both the formal and informal organisational factors that influence the individuals’ behaviours and their knowledge-sharing practices need to be clearly identified. Also, this analysis sheds new light on the role of ICTs in knowledge exchange that should be designed in relation to the social processes and the organisational activities.

The next chapter, “The Centrality of Team Leaders in Knowledge-Sharing Activities: Their Dual Role as Knowledge Processors” by Evangelia Siachou and Anthony Ioannidis, also investigates the relationships between individuals and organisations in knowledge exchange. The authors analyse the crucial role of team leaders as knowledge processors in favour of the other team members. In particular, they focus on action teams that deal with unpredictable situations and thus, need to obtain and make instant use of accurate knowledge, although their analysis might be applied to other virtual structures. The authors argue that team members cannot have access to critical knowledge directly, for lack of time or other constraints. Thus, the team leaders, being knowledge processors, act both as recipients of knowledge transferred from outside the team (from Internet repositories, external colleagues, or other sources) and as sources of knowledge for their team members. The capability to seek, filter, and deliver knowledge contents in the right way represents an essential skill. Well beyond the particular context considered here, the analysis of the role of leaders proposed by the authors provides useful insights into the complex relationship between the way organisational units are structured, and the effective processes of knowledge transfer that occur among their members.

The theme of the social context is also treated by Kerstin Siakas and Elli Georgiadou in their “Knowledge Sharing in Virtual and Networked Organisations in Different Organisational and National Cultures.” The authors, however, have a wider focus, and discuss the factors that affect knowledge sharing processes in culturally diverse networked organisations. Indeed, considering that the most important KM programmes are implemented by large and dispersed multinationals, this issue becomes of particular interest. There is often the assumption that ICT applications, providing standard communication platforms, can “magically” solve all the problems of knowledge exchange in virtual organisations between physically remote members. As the authors argue effectively, this view neglects the issue of the cultural distance that can hinder the effective transfers of knowledge. Indeed, this is an emerging issue for the management of multicultural companies (see, for instance, the related studies of the so-called “diversity management”), but is relatively new in the field of KM, and often treated without the necessary theoretical background. Based on authoritative studies of the notion of culture, the contribution examines the impact of different cultural values and perception on knowledge sharing and, consequently, on the effectiveness of KM programmes.

The following two chapters treat much more directly the issue of technology for KM. Axel-Cyrille Ngonga Ngomo, in his “Towards an Implicit and Collaborative Evolution of Terminological Ontologies,” opens a window to one of the more advanced fields of computer science applied to KM: the development and use of ontologies. This contribution has also the merit to provide a good example of technical literature in KM that has reached a considerable degree of formalisation. The problem of capturing the tacit components of knowledge in a way that can be handled and delivered automatically, can be seen as a particular process of knowledge exchange that challenges both KM researchers and computer programmers. The use of ontologies, which can be roughly defined as representations of knowledge in a form that can be interpreted by machines (and other persons), raises several issues that have not been resolved completely. Here, the author stresses some problematic questions: first, the connection between the representations of an individual’s knowledge (i.e., personal ontologies) and a representation
of knowledge that should be valid for a group of individuals (global knowledge); second, the problem of how ontologies can evolve along with time as the result of individual and organisational learning; and third, how personal ontologies can evolve autonomously by interacting with other personal ontologies. Although the chapter contains a high level of formalisation, even a non-specialist reader can have a good idea of the current problems that this field raises.

The chapter by Kimiz Dalkir, “Computer-Mediated Knowledge Sharing,” offers a view of technology that leaves apart the idea of ICT applications as the panacea of any problem of KM. Instead, she highlights that not all Internet-based knowledge-sharing systems are created equal: they differ in their effectiveness when used for exchanging knowledge. Communication channels support different levels of social interaction and this has an impact on knowledge sharing. It is necessary to define key knowledge and channel attributes in order to understand how knowledge can be effectively shared using computers. Dalkir’s chapter examines the computer-mediated knowledge sharing mechanisms, and proposes a typology based on media richness and social presence characteristics that can serve as a preliminary conceptual basis to select the most appropriate channel. Also, as the author notes, computer-mediated communication should not be thought of as a single communication channel, but rather a family of different technological applications. The proposed framework of knowledge and channel characteristics provides an alternative to the “one size fits all” approach to knowledge sharing on the Internet. Individuals wishing to communicate and collaborate using channel-mediated connections will be in a position to adopt a more systematic and deliberate approach to matching each type of knowledge with the best channel. As the computer-mediated communication technology evolves, and usage continues to intensify and diversify, being able to assess the best vehicle for knowledge sharing will provide a valuable means of ensuring both efficiency and effectiveness of the knowledge sharing. To this purpose, the modelisation proposed by Dalkir represents a valuable conceptual tool.

The last two chapters of the first section treat the issue of how knowledge exchange is perceived and valued by individuals and organisations, and the implications of this, especially in networked environments. Here, the KM literature still suffers a lack of formal modelisation for which a more direct relation with the economic models can be of use.

My chapter, “Understanding Knowledge Transfer on the Net: Useful Lessons from the Knowledge Economy,” discusses the contribution to the development of KM that can come from an “economic reading” of KM practices and, particularly, from the recent studies in the so-called “knowledge economy.” Indeed, KM is making its way among the other more established branches of business management, and a more direct link with the models and approaches of the economic disciplines would be useful to systematise the conceptual backgrounds and to improve the formal modelling. However, KM and Economics have often been distant areas, although recently, the attention to the economic models by KM researchers has increased and, on the other hand, eminent economists show interest in the study of knowledge as an explicit object of analysis. From these converging efforts, useful elements for the conceptual systematisation of KM can arise, and can give theoretical robustness to both the practice and the research. The chapter especially focuses on the process of knowledge transfer that can be seen as a sort of “market” between a source and receiver. This kind of modelisation provides novel interpretations of the value and motivation that individuals and organisations can have when exchanging knowledge with others. Additional issues (such as the cost and benefit of knowledge codification, and the mechanisms that can favour or hinder knowledge markets) are also analysed.

Similarly to the previous chapter, in their “Knowledge-Sharing Motivation in Virtual Communities,” Jengchung V. Chen, J. Michael Tarn, and Muhammad A. Razi treat the issue of motivation in exchanging knowledge and in particular, they explore the motivation of members to exchange knowledge in virtual communities. They analyse the underlying factors of such sharing behaviours and, like the previous
chapter, they found their analysis on elements drawn from economic theories. The authors present a novel conceptual model that illustrates the integrated relationship between transaction cost, expectancy value, and knowledge sharing in the context of virtual communities. The notion of knowledge market is also examined, since knowledge sharing is a form of knowledge transaction, and the concept of market provides an essential reference for understanding knowledge transactions and, thus, knowledge exchanges.

The second section of the book is entitled “Applications.” Here, however, the reader will not necessarily find detailed descriptions of methods, techniques, or tools (this was not the aim of the book). Rather, these chapters are placed here because they focus more directly on particular issues of knowledge exchange in specific contexts, which represents a good linkage between the formulation of general models and the practical problems of their use. As the reader can notice, the chapters offer a good panorama of the extreme variety of issues and situations. However, as done in the first section, they are classified based on the similarity of applications or approaches. In particular, the first chapters are more focused on “non-profit networks” or, in other words, on open environments, where the exchange of knowledge appears a question of sharing rather than trading. The last chapters are, instead, more focused on business contexts.

Margarita Echeverri and Eileen G. Abels, in “Opportunities and Obstacles to Narrow the Digital Divide: Sharing Scientific Knowledge on the Internet,” consider a problem that has become particularly important with the upsurge of the Internet: the digital divide. This chapter is a good demonstration of how the typical issues treated in the KM literature regard several heterogeneous fields. In particular, the authors reflect on the possibility to freely exchange scientific knowledge, (that is, one that, by its very nature, tends to be considered “public,” being the essential ingredient of education and development). Here, the Internet has provided a new channel for disseminating scientific materials, for instance, in the form of electronic journals: the access through the Internet is currently the fastest and least expensive way to access this kind of knowledge. However, although the Web itself was conceived to encourage knowledge sharing, several limitations can restrict the freedom of access, especially to those users that, for various reasons, do not possess specific resources. In the literature of KM, there is little theoretical and empirical work that addresses knowledge transfer through the use of open electronic networks. The authors propose a conceptual framework of the knowledge transfer cycle, and examine the key factors affecting the dissemination of scientific knowledge on the Web. Also, they discuss the results of a vast survey that shows how having access to the Internet is not a guarantee of successful transfer of public scientific knowledge. In relation to this, the current challenges facing the open-access initiative, of making scientific information free and available worldwide, are also discussed.

The chapter “Knowledge Exchange in Electronic Networks of Practice: An Examination of Knowledge Types and Knowledge Flows,” by Molly McLure Wasko and Samer Faraj, analyses an open environment for knowledge sharing, but is more delimited in focus and in boundaries, compared to the previous chapter. The study examines knowledge exchange in a global, interorganisational electronic network of practice based on the Usenet. Similarly to the previous chapter, this kind of network is based on a voluntary and globally distributed participation of members that do not have personal or organisational ties. This can thus be defined as an open community, although, as the reader can see, the members share a common interest in a particular topic, and the willingness to use a special infrastructure to transfer knowledge. The scientific literature (and the press as well) often emphasises the importance of these networks in supporting open knowledge exchanges, but there are few attempts to investigate in detail why and how these processes occur. The purpose of this study is twofold: on the one hand, the authors investigate what type of knowledge is being transferred in these networks, and second, how knowledge is transferred across individuals. The chapter analyses and classifies the contents exchanged in the messages (for this, the study also provides a good example of method applied to this kind of KM research),
and illuminates how people use computer-mediated communication to support knowledge transfer, the types of knowledge transferred, the different roles of participants in the structure, as well as how knowledge flows in this network. The reader can find a number of stimulating results. For instance, the heterogeneity of individuals participating with varying motivations is an important element that raises the intensity of knowledge transfers and encourages knowledge flows. Additionally, these networks can succeed only if participants are intrinsically motivated to keep abreast of new ideas and innovations and to help others with their problems. Without individuals seeking answers and interested in building social ties with others, there would not be an audience for others interested in sharing their knowledge. Here, one can say that the electronic network reflects the characteristic of any other social group.

Isa Jahnke, in her “Knowledge Sharing Through Interactive Social Technologies: Development of Social Structures in Internet-Based Systems over Time,” also analyses the exchange of “public” knowledge contents, but in a restricted environment represented by a campus university connection. The author illustrates the history and results of a vast campus project aimed to build a “common interface” for the exchange of “educational contents” among a network of students, tutors, and teachers. Indeed, as she argues, the developments towards the idea of a “Web 2.0” is based on new interactive Web-based tools, for example wikis and discussion boards, which enable the exchange of user-generated contents. The effect of existing social structures and roles in such a network, and the evolving nature of these, are analysed in her empirical research. In line with other contributions presented in this book, this research offers a good practical demonstration that the dynamics of social structures in online communities influence the effective processes of knowledge exchange. It is also important to notice that the way people communicate (i.e., face to face or online) does make a difference. The line of thought that “all people are the same” when they communicate online must be rejected, and unexpected behaviours may arise. The study demonstrates the change of roles, expectations, and activities in online communities. An interesting result for the reader is the conclusion about the complex relationships between intentional design efforts by the creators of the online communities, and the unpredicted emergence of social structures in Internet-based systems over time. This analysis has also a practical utility, since the author is able to sketch some essential criteria for designing online communities.

The next chapter, “Information Technology in Times of Crisis: Considering Knowledge Management for Disaster Management,” by Kalpana Shankar, David J. Wild, Jaesoon An, Sam Shoulders, and Sheetal Narayanan, treats the issue of knowledge sharing in emergency situations, and has various reasons of interest. First, it analyses a context for knowledge sharing that has some similarities with the previous environments (e.g., non-profit context, and exchange of public knowledge in wide heterogeneous networks), but that has some peculiarities (e.g., the time of knowledge exchanges) that allow the reader to make useful comparisons. Also, this issue has been, so far, little studied in the KM literature. Indeed, crisis and disaster management requires the sharing of complex information among numerous entities and individuals. After examining the problematic issues of this context and the current practices and ICT applications typically used, the authors especially illustrate and discuss the potential and limitations of new technologies, such as the Internet and Web 2.0 applications, combined with new KM practices. They show how the use of networked technologies like the Internet is still in its infancy, and with very little cohesion. They argue that although the Internet is already in extensive use in disaster management, knowledge management will only be affected if top-down and bottoms-up approaches to information gathering, organisation, and dissemination are implemented. The aim of this chapter is to provide an introduction to some of the many technologies, practices and open problems for knowledge sharing in disaster situations, outline some persistent challenges, and suggest venues for exploration and practice.

The following chapter, “Managing Knowledge-Based Complexities Through Combined use of Internet Technologies” by Cécile Gode-Sanchez and Pierre Barbaroux, can also be seen, in connection to
the previous chapters. This study introduces a theoretical framework to examine how Internet technologies provide organisations with additional capabilities to handle various forms of knowledge exchange and decision-making complexities. The authors refer their investigation to the specific field of tactical military operations that, due to the criticality and complexity of decision making, represent an excellent area for the experimentation and use of new technologies and practices. Also, the military contexts offer relevant illustrations of organisations that use Internet within complex decision environments for which short-term responsiveness and tactical adaptability are critical. The findings of the study can be well extended to other organisational contexts, ranging from emergency management to critical business environments. In particular, the authors investigate how specific combinations of Internet technologies can enable knowledge sharing processes to generate valuable supports for decisions. But they also argue that, although critical decision-making environments are generally designed following a top-down hierarchical structuring, the effective use of interactive technologies for knowledge sharing relates to the evolving social practices that fold together the planned and the unexpected, the tacit and the codified, into a complex combination of uses. Thus, an effective managerial solution for the implementation and use of these technologies requires the involvement of users in a bottom-up approach.

The last chapters deal more specifically with the business applications of knowledge exchange. Especially, they all focus on the emerging issue of interfirm cognitive relationships, which is a still an under-explored area of KM research. Deogratias Harorimana, in “Leading Firms as Knowledge Gatekeepers in a Networked Environment,” examines how distant relationships can be a source of novel ideas and insights, which are useful for innovation processes. Firms can develop global channels and create platforms not only to exchange products or services, but also to benefit from outside knowledge inputs. The business success can be derived from the ability to identify and access external knowledge sources located far away, and to convert this knowledge into an explicit format that can be transferred and reused. However, all this is not easy, even with the use of advanced ICT applications. Here, the analysis of KM and KT processes becomes essential. In this tradition, the author analyses the critical activities of knowledge conversion that have to take place to make the interfirm knowledge exchange possible. The effectiveness of these processes is affected not only by the nature of the knowledge exchanged, but also by the social and cultural environment where these processes occur. To favour these, there is increasing attention on the role played by some firms in a network of connecting organisations. These firms are called “knowledge gatekeepers” since their role is to create a shared social and technological platform that can enable knowledge transfers among networking firms by means of the sharing of tacit meanings or the codification of knowledge. The notion of knowledge gatekeeper proposed here, which extends concepts already developed in the organisational literature (from knowledge brokers to knowledge mediators), also sheds light into new interpretations of the role that is generally ascribed to leading, and builds a bridge toward the economic analysis of the transformations of industrial systems.

Enrico Scarso in “The Role of Knowledge Mediators in Virtual Environments” examines the functions of online knowledge mediators as well, but seen as independent businesses whose mission is explicitly targeted at facilitating the knowledge exchange among business partners. Such firms, of which the author provides examples, specialise in performing activities that are related to KM and KT. After illustrating the different models that are adopted in the literature to describe the nature and functioning of interorganisational knowledge transfer, the author raises the important issue that the role of knowledge mediators should be interpreted as a combination of strictly cognitive (or KM) functions with those typically performed by the classic economic mediators in business. He also suggests a two-dimensional framework based on these two complementary views that can provide interesting elements for the research and practice in the field.
The chapter by Stavros T. Ponis, George Vagenas, and Ilias P. Tatsiopoulos, “Knowledge Management in Virtual Enterprises: Supporting Frameworks and Enabling Web Technologies,” deals the issue of interfirm cognitive relationships as well, but focuses on the particular context of virtual enterprises. This organisational structure, which emerges as a shift from traditional hierarchical organisations to more loose and flexible business relationships, strongly relies on the exchange of knowledge among partners supported by an intense use of ICTs. However, the practical implementation and management of virtual enterprises still needs research and practical development. In this sense, as the authors argue, although these organisational forms are strongly based on the management of interfirm knowledge exchanges, the literature on KM has so far showed little interest in this area. After characterising the peculiar problems of knowledge exchange in these complex contexts, the authors propose a good illustration of the current state-of-the-art of the most advanced ICT applications for networked infrastructures in virtual enterprises, from multiagents systems to Web services. They argue that the most critical issue that these technologies have to deal with is the high heterogeneity (seen at different levels) that characterises virtual enterprises. Finally, the authors attempt to combine the various elements discussed in the chapter with the purpose to illustrate a possible comprehensive framework for KM in virtual enterprises.

Scott Erickson and Helen Rothberg, in “Sharing and Protecting Knowledge: New Considerations for Digital Environments,” propose a completely different perspective of interfirm knowledge exchanges. Indeed, as KM practice increasingly moves to the Internet, it is worth highlighting not only the new opportunities that are offered, but also the threats to the security of proprietary knowledge. The Internet, as a matter of fact, also makes knowledge assets more vulnerable to competitive intelligence efforts made by competitors. The authors analyse various aspects and elements of this problem, and illustrate possible threats that can come from the spread of KM practices in organisations that, by their nature, are designed to make knowledge more explicit and to facilitate their circulation and, at the same time, make such knowledge more difficult to protect. However, as they argue, both the potential and the vulnerability of knowledge on the Internet varies according to the nature of knowledge assets, and there is the need to examine all these factors in combination. The authors propose a model that integrates three dimension of knowledge (tacitness, complexity, appropriability), and relates these with its vulnerability in a KM Internet-based environment. This discussion provides interesting insights into the issue, and new proposals for further research. For instance, an interesting direction of study is exploring the balance and tension between how far to share knowledge and how far to protect it. The attempts to find appropriate models to answer this question can provide fresh lessons.

The last chapter, “Identifying Knowledge Values and Knowledge Sharing Through Linguistic Methods: Application to Company Web Pages,” by June Tolsby, proposes an original viewpoint of the knowledge transfer process. The author analyses the way a company “communicates” knowledge about its organisational identity and values to the external environment by means of its Web pages. Indeed, with the increasing use of the Web as a communication tool, this becomes a sort of “open window” towards the inside of an organisation. It might thus be interesting to find useful methods of analysis that enable a better understanding of the contents that a company is (intentionally or not) communicating. Here, the author proposes a novel combination of approaches developed in the KM field (such as the building of identity in a community of practice) with elements of communication theories (i.e., the concepts of modality and transitivity in a text, and the discourse analysis). For an empirical test, she proposes the application of her method to the analysis of a company’s Web site, illustrating how this approach can be of use to identify the firm’s identity and the values that the organisation communicates. This experimental use of methods and approaches developed in completely different areas from KM interesting prospects of application.
CONCLUSION

Seeking a Shared Conceptual Space for Research and Practice

The contributions collected here provide a good sample of the variety of viewpoints, approaches, models, elements of analysis, and application fields that the KM-related literature proposes on the issue of knowledge exchange. The authors, specialising in different fields, offer a very stimulating picture of research prospects, and provide novel ideas and food for thought to the reader.

As mentioned before, the extreme heterogeneity of the KM literature can be an element of richness, but can also lead to idiosyncratic approaches, which can make the research and the practice difficult. As said, one purpose of the book was to investigate, by means of a collection of various contributions, about one essential question: is the KM field going towards a unification of some shared “foundational” elements that can make this discipline more robust at a scientific level? Or at least, can we perspectives, vocabulary that facilitates the sharing of models and perspective, and boosts the field? Or conversely, is the research evolving in direction to a fragmentation of viewpoints, approaches, and models?

With regard to these questions, and with particular reference to the processes of knowledge exchange that was the main object of the book, the contributions gathered represent an excellent survey of “hot issues,” that are summarised in the points illustrated.

a. Definition of Knowledge

The notion of knowledge is, to some extent, difficult to capture. A fundamental acquisition of the KM literature is the distinction of knowledge from data and information. this distinction represents the foundations of the notion of knowledge that is widely used in KM research, and in many of the chapters of this book as well. But problems may emerge when this distinction is applied to the specific context of analysis. For instance, in some cases, the adopted notion of knowledge is not very far from the current idea of information, while in others, there is more emphasis on the difference. Also, sometimes the researchers focus on the “material” manifestations of knowledge (e.g., its representation) that can be somewhat modelled and handled, in others they underline its “intrinsically” intangible essence.

b. Knowledge Exchanges in Networks

The reader can note that there is no shared definition nor single use of some basic terms. As regards, for instance, knowledge exchange, knowledge sharing, and knowledge transfer, these terms are sometimes used as synonyms or, in others cases, different definitions of the same word are adopted. The same happens to notions such as electronic networks, virtual communities, online communities, and communities of practice. As in the case of knowledge, it can be said that the various authors tend to adopt the definitions that better fit their particular viewpoint, or that are drawn from the reference literature they use. This is clearly very appropriate for the specific purpose of each piece of research, and, indeed, is probably necessary to facilitate the readability of the single work. But it also represents an element of divergence, and a limitation for a more effective communication in the KM scientific community.

c. Attributes of Knowledge

There are also elements that can now be considered shared across the entire KM scientific community. One of these is the well-known distinction between tacit and explicit forms of knowledge. Today, this
classification can be considered a basic entry of a KM dictionary. As the reader can see, this element crosses the various approaches of analysis and application fields proposed by the various authors, transversally. Unfortunately, the definitions of tacit and explicit knowledge are somewhat elusive, which explains why there is less uniformity when we pass the application of this classification to the different situations of knowledge exchange that are considered by the various authors.

d. Application Fields and Research Methods

As mentioned, the heterogeneity of the application fields is an element of richness, but raises essential questions about the possibility to adopt common backgrounds and research methods. For instance, what is the fundamental unit of analysis? Is knowledge exchange a process involving individuals or organisations? If we need to treat both cases (which we probably cannot avoid doing), can we model this phenomenon in a single and uniform way? In addition, what does it mean when an individual exchanges knowledge with a system? What is really exchanged in these processes? What is the role played by the “context” where knowledge exchange occurs? How can we delineate the boundaries between the context and the players involved?

Indeed, the variability of situations often demands different approaches both to modelisation and to empirical research, and to the practice as well. In this sense, the contributions presented here offer a good example of that. As the reader can see, all the chapters deal with all the above-mentioned questions in some way, but the solutions they propose are not always compatible to one another. The scholars are increasingly aware that there is need to combine and integrate various viewpoints and methods in a common viewpoint, but this still requires an effort of systematisation and convergence. Even the references quoted by the contributors reflect this multifaceted challenge. On the one hand, there is a substantial part of references that is shared by the various chapters, but there are also specific backgrounds that correspond to the working discipline of the researcher or are related to the particular application.

e. Quantitative or Qualitative Models?

This is a crucial question in many disciplines, and has often represented a reason of contrast between the natural sciences (mostly based on mathematical models) and human or social sciences (that often deal with more elusive and ambiguous objects), with other fields in the middle (such as economics). In the case of KM, which indeed is a multidisciplinary field, this debate appears still at the beginning, and the scholars are more involved in defining the fundamental concepts or analysing the practical implications of KM solutions. As other areas of management, the mathematical modelisation is often relegated to the “hard” technological approaches, while the studies that treat the “soft” issues (i.e., social and relational aspects of knowledge exchange) are much based on qualitative models. An integration of quantitative and qualitative modelisation approaches would be desirable and useful (on this point, see also the following).

OPEN ISSUES AND FUTURE RESEARCH DIRECTIONS

Based on what was previously said, and on other ideas that emerge from the chapters, it is now possible to mention some promising areas for research. A first point for a future agenda is the general issue of modelisation. As mentioned before, the analysis of knowledge exchange becomes central in any study of KM. There is, thus, the need to build some basic models of these processes, in other words, a schematic
view consisting of a few variables or elements. Once these fundamental models are defined, it will be possible to build the particularisation and the adaptations to the specific object of research or practice. As some of the chapters also show, there is an increasing effort of basic formalisation by researchers. In the various chapters, the reader will find an important source of ideas and references.

Another issue that deserves further analysis is the codification of knowledge within knowledge exchanges. Indeed, as the chapters collected here also show, two contrasting viewpoints have, for a long time, predominated and are frequently considered separately: one that sees knowledge exchange as a process that involves just coded knowledge, and the other that focuses on whether and how it is possible to exchange tacit knowledge. These are two faces of the same coin: any practical implementation of KM requires that both the aspects are considered together. An effort of integration of the mentioned perspectives would be of use: the recent literature (as the present contribution show clearly) stresses the concerns about how these two views can be combined with one another. For instance, an in-depth analysis of the benefits and problems of codification in to specific knowledge exchange processes would be of significance.

A similar dichotomy of approaches can be found with regard to technology. On the one hand, technologies are often treated as a world apart, an ideal and comfortable environment where knowledge can be treated as a detached and explicit object that has just to be carried from one place to another. This sometimes neglects the intangible and elusive nature of knowledge, and imposes simplifications that can be too drastic. On the other hand, those that privilege a social approach to KM often neglect that, without technologies, KM would simply not exist the way we know it. The richness of formality of the models implemented by technology experts can provide useful lessons for social approaches. A further point for a research agenda is how these two contrasting areas can be connected. Again, the chapters presented here shows a rich variety of positions and viewpoints on which to reflect.

Finally, another important point of a future research agenda is the connection with the models developed in the economic disciplines. An area of notable importance for KM is the analysis of costs and benefits of knowledge exchanges and, more generally, the issue of value. As our chapters clearly show, there are several ways to see the value of knowledge. The economic disciplines that place the notion of value at the centre of their research can provide useful lessons here, but the connection with the KM field still requires further study.

REFERENCES


